



## *A Concrete Example of Integrating Standards*

**Dr. Heather J. Brown**  
**Director and Associate Professor**  
**Concrete Industry Management**

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# Concrete Industry Management (CIM)

- ◆ Blend of Engineering and Business courses to bring concrete education to the next level.



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# Nationwide Press Articles

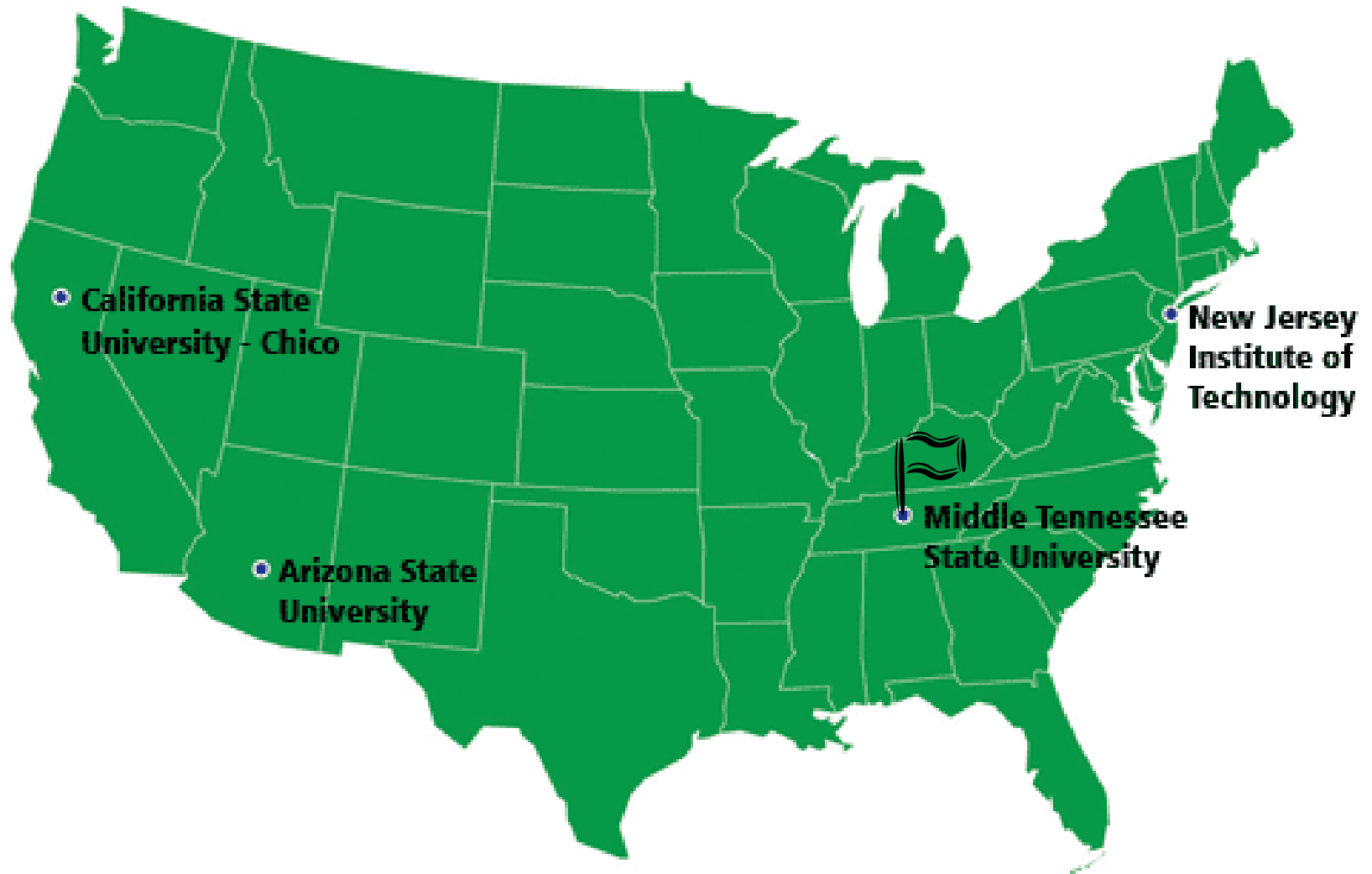
- ◆ AP article was seen in 104 papers nationwide.
- ◆ “Popular MTSU degree cements industry, academia relationship”
  - *Hottest major is concrete management*
  - By WILL YORK  
Associated Press  
Friday, 07/20/07



**Dr. Heather J. Brown, director of the concrete industry management program at Middle Tennessee State University, and MTSU senior Jeremy Mertens examine the student parking lot made of a porous-type concrete that allows water to pass through it. (PAUL J. LEVY / ASSOCIATED PRESS)**

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# Expansion Schools



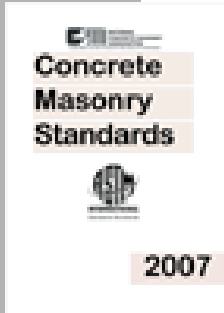
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# CIM Core Courses

- ◆ CIM 1010 – Intro to Concrete Industry
  - Lecture on ASTM and importance of standards.
- ◆ CIM 1050 – Blueprint Reading
- ◆ CIM 3000 – Fundamentals of Concrete
- ◆ CIM 3050 – Concrete Construction Methods
- ◆ CIM 3060 – Construction Systems
- ◆ CIM 3100 – Applications of Concrete
- ◆ CIM 4050 – Management of Concrete: Order and Delivery
- ◆ CIM 4060 – Management of Concrete: Production Facilities
- ◆ CIM 4150 – Concrete Diagnosis and Troubleshooting
- ◆ CIM 4200 – Concrete Research
- ◆ CIM 4910 – Senior Capstone

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# ***“Standard” Practices In CIM***



- A compilation of 44 ASTM Standards pertaining to concrete masonry. Specifications on concrete masonry units, mortar, aggregates, grout, flexural bond strength, segmental retaining wall units, paving units.



- A compilation of 38 ASTM related to two ASTM standard specifications for ready-mixed concrete: \* C 94 Ready-Mixed Concrete \* C 685 Concrete Made by Volumetric Batching and Continuous Mixing.



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# ASTM for Materials

◆ Aggregates



◆ Cement



◆ Pozzolans (fly ash, silica fume, shale, calcined clay or metakaolin)



◆ Slag



◆ Water



◆ Chemical Admixtures

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# Industry Certifications

## ◆ Concrete Laboratory Testing Technician - Grade I\*

- 12 ASTM's

## ◆ Concrete Field Testing Technician - Grade I

- 9 ASTM's



- Testing Laboratory Technicians
- Contractor Quality Control Personnel
  - Architect/Engineer Inspectors
- Ready Mixed Concrete Personnel
  - Supplier Sales

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# Senior Concrete Research

- ◆ **ASTM Volume 04.01: Construction: Cement; Lime; Gypsum**
- ◆ **ASTM Volume 04.02, Concrete and Aggregates**
  - **Perform laboratory testing utilizing an ASTM standard**
  - **Write a technical report referencing ASTM standards**
- ◆ **Significance of Tests and Properties of Concrete and Concrete-Making Materials (STP 169D)**
- ◆ **Cement, Concrete & Aggregates Journal (2004)**
  - **Literature review resources**



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# ASTM Standards are “set” in CIM

- ❖ ASTM Student Membership
- ❖ Exposure to over 75 ASTM's during college
- ❖ Tested over ASTM's for industry certifications
- ❖ Evaluate concrete using ASTM methods
- ❖ Reference ASTM's in technical report writing
- ❖ Review articles in ASTM journals
- ❖ Interact with professors who serve on ASTM committees

Thank you – Questions?